1145-VO-2745 **Bradley Lewis Burdick*** (`bburdick@uoregon.edu`). *Ricci-positive metrics on arbitrary connected sums of products of spheres.* Preliminary report.

Sha and Yang gave a sufficient condition on a Ricci-positive manifold to perform surgery while preserving Ricci-positivity, which applied to $S^{n-1} \times S^{m+1}$ with the product of round metrics yielded a Ricci-positive metric on $\#_k(S^n \times S^m)$. Using a technical constructions of Perelman, we give a sufficient condition to perform a modified surgery, which in particular allows us to replace the attaching handle $D^n \times S^m$ with $(N^n \setminus D^n) \times S^m$ given the existence of a Ricci-positive metric on $N^n \setminus D^n$ with round, convex boundary. Applied to $S^{n-1} \times S^{m+1}$ with a particular choice of metric yields a Ricci-positive metric on $\#_i(N_i^n \times S^m)$.

Going further, by making a careful local analysis of the metric constructed on $\#_k(N^n \times S^m)$ on a neighborhood of $(N^n \times S^m) \setminus D^{n+m}$, one finds that this metric almost satisfies the hypotheses originally imposed on the metric for $N^n \setminus D^n$, except the boundary is not round. We will discuss whether it is possible to correct this defect. Assuming one could, the conclusion would be that it is possible to find a Ricci-positive metric on on arbitrary connected sums of arbitrary products of spheres. (Received September 25, 2018)